



E-governance

Introduction

The arrival of new information and communication technologies (ICTs), in particular the Internet, has dramatically increased our capabilities to gather, process, and share information. The bursting of the ICT investment bubble notwithstanding, the accomplishments are very significant. For instance, transmitting a 40-page document from Chile to Kenya by e-mail costs less than 10 cents, faxing it about \$10, sending it by courier more than \$50. Or, equally impressive, in 2001 more information could be sent over a single cable in a second, than what was sent over the entire Internet in one month in 1997.¹

This technological quantum leap can be channelled to support the goals of sustainable and equitable human development. The field of possible applications is wide. More than 90% of developing countries explicitly consider ICTs in their national development plans and more than 40% accord them a particularly prominent role in their poverty reduction strategies.² One cross-cutting area that has received special attention is the use of ICT in the pursuit of good governance, usually subsumed under the term *e-governance*. A large number of development interventions focus on the role of ICTs for enhancing the efficiency, accessibility and democratic accountability of public administration and collective decision-making. With these objectives e-governance is firmly anchored in the

universally recognized goals for human dignity and development established by the Universal Declaration of Human Rights and pertinent covenants. Most recently these principles have been reaffirmed in the 2000 United Nations Millennium Development Declaration, which emphasizes the pivotal role of good governance for human development. Setting a clear goalpost for e-governance, the 189 Member States pledged to “strengthen the capacity ... to implement the principles and practice of democracy”, “to work collectively for more inclusive political processes allowing genuine participation by all citizens” and “to ensure the right of the public to have access to information”.³

Given the scale, scope and potential of e-governance interventions underway, this ESSENTIALS has synthesized the most significant lessons learned from current evaluative evidence from UNDP and partner organizations on what works and what does not. The urgency of this exercise is also underscored by emerging experience with ICT projects in private sector organizations in industrialized and developing countries. Research in this area suggests that ICT projects can deliver significant benefits but only 25% of large-scale ICT projects are found to be on target.⁴ The link between better technology and better governance is not automatic. The opportunities are tremendous, but the challenges are formidable, and the conditions for success or failure need to be carefully identified.

Concept

E-governance is a multifaceted concept that refers to the use of ICTs for improving collective governance. This definition covers a wide range of activities, that can be grouped in four clusters of ICT-enabled reform objectives:

- I. Facilitating access to political information and improving the means for political expression, discourse, mobilization and advocacy;
- II. Enhancing the democratic quality of the political process and public administrations through more transparency, accountability, participation and disintermediation;
- III. Making the internal working of public administrations more effective and efficient; and,
- IV. Enhancing the range and utility of public services on offer and making their delivery to citizens and business more accessible, efficient and responsive to the needs of all groups of clients.⁵

What exactly are the technological innovations that inspire e-governance initiatives? In principal, e-governance is nothing new. ICTs have for quite some time played an important role in public sector reform initiatives, mainly with the aim to improve the efficiency of bureaucracies and enhance the quality of information for public decision-making. For example, ICTs have been deployed to automate case-handling procedures and establish information systems in support of budget management or resource planning. Digitization of information has made it possible to create perfect copies of information items at negligible costs and integrate or manipulate them in flexible ways. But only recently have these technologies become affordable for mass deployment in the public sector and the end-user market alike. And their potential to support information flows between governments and citizens, as well as within bureaucracies has been dramatically amplified with the advent of the

Internet. This set of technologies provides a common standard to exchange information across diverse networks, transmit it as broadcast or in targeted form almost instantly, at negligible variable cost and with significant feedback options.

Taken together, these features can support the four broad objectives for e-governance outlined above in multiple ways. Interconnectivity bodes well for easier co-ordination across government departments, new public spaces for political deliberation and engagement, as well as for new and more efficient channels for service delivery and consultation. Greatly augmented opportunities for information publishing and information research promise more informed decision-making and democratic control for the citizenry. But ultimately governance is a social, not a technological phenomenon and improvements are social and institutional accomplishments. Understanding these linkages between governance and technology is pivotal to making ICT work for human development. Emerging evidence from e-governance interventions provides a number of important insights for this purpose.

Lessons Learned

1. The benefits from e-governance are very diverse, often subtle and go beyond cost-saving and direct democratic participation

The costs of e-governance should not be underestimated. Direct expenses for ICT equipment are only one component of the total price tag. Experience shows that significant resources are also being devoted to user training and ongoing ICT support services. As a result, a country like Malaysia earmarked a total of \$113 million for a package of six flagship e-governance initiatives between 2001 and 2005. In this context, e-governance projects can still serve as a revenue generator, for example by making fee collection more effective. But

financial self-sustainability or even administrative cost savings are difficult to achieve. This does not mean that e-governance cannot deliver results. The main benefits can often be found elsewhere, and they are more dispersed and less quantifiable. Better accessible and faster public service delivery translate into time and resource savings for businesses and citizens. Enhanced accountability reduces corruption, fosters trust in public institutions and strengthens public legitimacy, important yet difficult to measure factors in economic and political development.

Likewise, the main effect of e-governance projects that seek to strengthen democratic structures does not seem to come from radical disintermediation of political information flows or electronic voting. Persistent disparities in ICT access and skills coupled with individual limits on available time and cognitive capacities render political intermediaries such as civil society or the media indispensable and bring these institutions into focus for related development interventions.

What to do?

- Take a broad perspective when designing an e-governance initiative. Consider all possible objectives, fully account for all project costs and critically assess, whether financial self-sustainability is feasible without trading-off other developmental goals.
- Apply cost-benefits analysis carefully. Many benefits and costs are dispersed, materialize with a time-lag, and are difficult to quantify. A narrow focus on direct expenses and immediate cost-savings can exclude worthwhile projects from funding and overall lead to a narrow project portfolio that does not maximize the benefits that ICTs offer for governance.
- Evaluate carefully the value of ICT for democracy interventions by identifying concrete constraints for accountability

and political engagement in interventions that seek to enhance the democratic quality of governance and principles of individual empowerment. On the government side, initiatives can be designed to support freedom of information practices that increase access to government-held information and thus provide valuable inputs to the work of advocacy groups and the media. On the citizen side, initiatives can directly target ICT capacity building for civil society and media organizations. Bear in mind that related instruments such as e-voting, e-referenda or e-consultations are technically challenging and require a firmly established and inclusive political space.

Example:

In 1999 the city of Seoul launched an initiative for Online Procedures Enhancement (OPEN) with the aim to reduce corruption and enhance accountability for routine transactions between citizens and the administration, such as planning and license applications and the issuance of certificates.

54 of the most problematic and corruption-prone applications were made available online. An information tracking system enabled citizens to receive an electronic receipt for filing their request and track the status of their application through different review processes up to the final approval or rejection. In order to ensure effective oversight, applicants were provided with the name and contact details of the involved case officers and a flow-chart of the entire decision-making chain. To keep the system up-to-date, the case officers were obliged to post changes in the status of an application within eight hours after they had taken place. Survey data from 2001 testifies to the success of the system. Of 500 polled citizens 68% reported to experience a reduction in illegality and corruption, while 63% observed a faster turnaround.⁶

Example:

In Colombia two domestic civil society organizations embarked upon an initiative to improve public accountability at the municipal level through the provision of procurement and budget information online.

Following a successful pilot implementation in the city of Paipa in late 2002, the initiative was extended to four more interested municipalities with partial funding from USAID. Using free software developed by one of the NGO project partners, the local government websites were populated with accountability information such as government contracts, budgetary provisions, administrative decrees and plans. The initiative is undertaken in close co-operation with the respective Mayor's offices, thereby also exemplifying an innovative public-private partnership for enhancing access to government-held information and stimulating citizen engagement in local political affairs.⁷

Example:

In 1999 UNDP launched a project with the Government of Azerbaijan to introduce new ICTs into the day-to-day operations of the customs service. The initiative aimed at improving a work environment that was characterized by outdated hardware equipment, limited Internet connectivity, a lack of timely and relevant customs data, and the prevalence of paper-based case handling.

Under a cost-sharing arrangement between UNDP and the government a computer network was built to link customs units across the country and equip them with the required ICT resources, as well as tailor-made software applications. In addition, customs officers received intensive training in ICT skills, and specific customs-related activities.

As a result of the initiative, the reliability and relevance of export-import data greatly improved. The ability to access and report case-related information in real-time led to a

more effective collection of customs duties. Revenues increased from \$136 million in 1999 to \$190 million in 2002, while the overall costs for the ICT upgrade was put at \$1.25 million. The success of the initiative also gave a strong impetus for extending ICT-led modernization to other government entities.⁸

2. The poor do not automatically benefit from e-governance initiatives

Not everyone derives equal benefits from e-governance. Differences in ICT access, skills, income or socio-cultural status make specific e-governance services more accessible for some, usually more privileged, user groups. An ICT upgrade programme for a ministry in Vietnam, for example, was found to reinforce gender disparities, since not a single of the civil servants selected for intensive training as a key user of the new system was female. Likewise, the failure of key stakeholders and implementing experts to understand strategic poverty objectives limited the impact of an initiative to broaden ICT access in the Philippines.

Different user groups have different needs and thus derive different utility from a specific application. In India, for example, electronic channels for paying utility bills are found to add much convenience for middle-income users, but do not hold much in store for the poor.

What to do?

- Identify the specific information- and service requirements of different user groups and design e-governance interventions accordingly. E-governance interventions should respond to urgent information and communications needs, not mere technology disparities.
- Adopt a pro-poor focus. Closely align e-governance interventions with strategic

development objectives as expressed in the Millennium Development Goals and with specific national development priorities. While e-governance initiatives tend to serve more privileged user groups, they can still benefit the poor indirectly, for example by creating a more conducive business environment and stimulating economic activity. This requires a better understanding of differential impacts and existing structural barriers that need to be taken into account when conceiving and justifying development interventions for e-governance.

- Integrate e-governance initiatives with collective and decentralized ICT access facilities, such as rural community ICT centres. In addition, consider to harness innovative wireless infrastructure solutions, in order to mitigate connectivity constraints. Both strategies can serve to broaden access beyond the urban middle classes. For this purpose innovative public-private partnerships should also be explored at the national level, since they might offer additional channels for spreading e-governance facilities.
- Address disparities in skills by tailoring awareness, outreach, and training efforts onto less privileged segments of the targeted users, using lessons learned from existing programmes in the country and from experience in other countries.
- Conceive e-governance as a complement, not as a substitute for conventional modes of government-citizenry interaction. Rolling out e-governance at the cost of neglecting established channels for service delivery or participation, will leave the most disadvantaged groups worse off and exacerbate the effects of ICT skill and access disparities.

Example:

In 2001 the Indian state of Karnataka launched an ambitious project to overhaul the management of rural land records, which are essential certificates for smallholders to secure loans and trade plots of land. Obtaining or modifying these records used to be a tedious, non-transparent subjecting in particular the least powerful to corruption, long delays, and arbitrary treatment. Under the so called Bhoomi (land) initiative records of land ownership for 6.7 million farmers were computerized. In addition, ICT-enabled land record kiosks were established at the sub-district level, at which farmers can inspect records, register modifications and obtain printed copies.

The new system dramatically streamlined the application process and rolled back corruption. A survey in 2002 found average bribes per person reduced by 98%, leading to overall estimated savings of more than \$16 million per year. Moreover, 72% of users required only one visit to obtain a certificate as opposed to only 5% under the conventional system. And the initiative proved particularly beneficial for the most disadvantaged clientele: 78% of polled user found the computerized system easier to use and 21% of users reported to come from a household, in which the chief wage earner is illiterate in contrast to only 8.5% of users in a control group that still had to use the old manual system.

Example:

In 1998 UNDP launched a project in Egypt to provide Internet access and training to rural and remote communities through Technology Access Community Centers (TACCs). The outreach to local communities and marginalized groups was significantly strengthened in 1999, when the United Nations Volunteers (UNV) entered the programme. ICT volunteers were dispatched to these Internet access sites, in order to build skills and foster ICT adoption at the community level. Although the project was not directly focussed on e-governance,

its strategies for reaching out beyond affluent early adopters and involving marginalized segments of the population was exemplary.

Establishing outreach and capacity building as stand-alone project priorities sharpened the developmental impact of TACCs by concentrating their impact on the users and applications that are ill-served by the private sector. The volunteerism aspect also ensured the participation of individuals with high levels of commitment and flexibility, traits that are of particular importance for the difficult-to-define task of community outreach. Likewise, the presence of women volunteers facilitated the targeting and involvement of female users. Finally, mixing international with national volunteers greatly supported learning and skill transfers. National volunteers served as important bridges between international expertise and local knowledge.

3. E-governance can act as a catalyst for change only when there is political will, institutional support, and commitment from key stakeholders

E-governance initiatives have been observed to facilitate institutional change when there is strong political and institutional support. In such a context, ICT tools for collaboration and information sharing can be successfully deployed for collaborative one-stop-shop-provision of public services. However, ICTs do not simply imprint these features on organizational structures. They cannot flourish where no incentives for information sharing exist. Experience shows that stakeholders that feel ignored or threatened by e-governance reforms find many ways to boycott and manipulate the adoption of ICTs in governance systems and thereby severely undermine, or even fully compromise the intended outcomes.

What to do?

- Raise awareness about envisaged objectives and benefits through strategic partnerships with existing national institutions and consult widely to fully understand stakeholder needs and concerns in different contexts.
- Build political support by enlisting a high-ranking political champion and by creating a task force at senior departmental level.
- Engage key users in the design process and share responsibilities in implementation to generate a sense of ownership and to align user interests with project objectives.
- Integrate e-governance projects in broader public administration reform initiatives and leverage existing information infrastructures. New ICTs do not work in isolation, but interact with other media and information and communication practices. Maximizing the impact of e-governance interventions requires to understand this pre-existing information environment. Initiatives designed to supplement and amplify existing capabilities, rather than to supplant them are more effective, limit disruption and thus the resistance to change.
- Develop an integrated strategy to build momentum for change. Start with initiatives in the most conducive environments, which can often be found at reform-minded entities at the municipal or sub-national level. Harness the showcase effect of these pioneer initiatives to bring on board more change agents, promote policy reform and animate debate about an e-governance strategy at the national level. Finally, help to exploit synergies between local, regional and national initiatives by providing a platform for exchange of experience, as well as for discussion of

ideas on how to link-up individual e-governance endeavours, in order to move towards an integrated provision of governance functions to the fullest benefit of the citizens.

Example:

Lebanon expedited the development of online public services by launching a cross-departmental initiative to digitize and provide online all official forms from 21 ministries and 44 government agencies. Twelve staff from the Office of the Minister of State for Administrative Reform spent six months to collect more than 1600 forms and make them available online in a central repository. Launched in January 2002, the website received more than 20000 hits already on its first day of operation. Since then it has grown to include forms from regional districts and municipalities, providing by the end of 2003 access to over 4500 forms with detailed information on related workflows, fees and departmental contacts. The initiative illustrates how specific administrative functions that greatly enhance the transparency and convenience of government-citizen interaction can be brought online in expedited manner by circumventing intra-departmental constraints through a concerted initiative at ministerial level. A positive feedback loop to public sector can also be observed. The resulting centralized online collection of forms has also made it possible to identify inconsistencies and duplicated information gathering, thereby assisting efforts to streamline and better co-ordinate the provision of public services.

Example:

ICT for development interventions, including e-governance initiatives often take as point of departure so called e-readiness assessments that focus narrowly on shortcomings in ICT availability, skills, applications and policy environment. As a consequence, e-governance projects often run the risk of concentrating on conceiving stand-alone ICT solutions and at the same time forgo opportunities for leverage

through better integration with existing media and information management infrastructures.

In 2001 the Swedish International Development Cooperation Agency (SIDA) chose a different approach. It commissioned a study to go beyond the assessment of mere ICT disparities and map in more comprehensive fashion the existing information assets and services in Mozambique. Low levels of computerization and web presence notwithstanding, the study discovered a number of remarkably effective information systems in use in the public administration. Best practices included a well developed case-handling system in the Ministry of Fisheries, integrated library services for the agricultural sector and a decentralized and highly effective system for education statistics.

Supplementing conventional e-readiness assessments, the study provided donors with a more fine-grained understanding of gaps in the existing 'soft' information infrastructure. It helped to identify priorities for intervention and to fathom interventions that align themselves synergistically with and provide maximum leverage to existing national capacities.

4. The right mix of technologies can add flexibility, foster local adaptation and ensure competition and choice in the market for e-governance solutions

Open source software (OSS) has evolved into a major alternative to proprietary software solutions and is increasingly embraced by developing countries for e-governance projects. Driven by voluntary inputs from thousands of developers, OSS has proven its maturity by capturing a dominant market share for many mission-critical functions at the core of the Internet. OSS is programmed in a way that keeps the inner workings of the software visible and

malleable. And it comes with a license agreement that explicitly preserves the right of any user to freely modify, refine and often also redistribute the software.

E-governance initiatives around the world increasingly take advantage of these features to adjust OSS applications to local languages and needs. The open development environment ensures that these tasks can be tendered competitively to the local software industry. As a result, popular OSS software applications are available in more than 40 languages, double the number of comparable language adaptations in proprietary systems.⁹ It also provides a particular advantage when dealing with important government-held information. The choice of OSS file formats ensures that long-term access to digital archives is guaranteed and does not depend on a single software proprietor or a decision on how long to support a specific file format in later product versions.

What to do?

- Address software choice not only at the project implementation level, but also upstream, in the context of strategic e-governance policy frameworks through consultation with public and private sector partners to realize economies of scope in development and maximize the compatibility between applications.
- Factor in the specific accountability requirements for public sector information systems, which render transparency, adaptability, security and long-term data preservation as important criteria towards better governance.
- Consider the strategic impact of technology choice on the domestic software and ICT services economy and possible implications for national governance programmes. In industrialized and developing countries alike the public sector is quite often one of the biggest software consumers and thus exerts a considerable demand-pull

effect on the direction of investments and market development. In addition, the software design of e-governance projects has important cross-effects on the software choice of other users, since it determines the data formats that citizens and business can use when filing information with the administration.

- Review the OSS software development work undertaken by other countries and explore options for building upon and sharing existing modules through.
- Explore the options for public-private partnerships, since various key industry players have launched open source products and are eager to promote OSS adoption in different contexts.

Example:

As in many other countries, the Government of the Philippines assumed an active role in OSS development and stepped up efforts to adapt OSS software to its own needs. The Advanced Science and Technology Institute, the main public ICT research agency, actively undertakes OSS research. In 2002 it released its own version of a flexible and slim OSS operating system, Bayanihan Linux.

The initiative has already yielded tangible results. Bayanihan Linux was licensed by a major telecommunications company in the country for an initiative to provide low-cost 'people's computers. The system was also adopted by the University of the Philippines and received endorsement by the Commission on Higher Education for further use in colleges and universities. Bayanihan Linux is continuously undergoing refinements and in its latest version, released in November 2003, was linked with a number of office productivity tools to ensure widespread adoption.

In addition to public research on OSS operating systems, other public OSS initiatives in the Philippines aimed directly at e-governance applications. For example,

the National Computer Centre, another public research entity, developed an OSS website template and content management system that was distributed for free to all government departments and contributed to an online presence rate of almost 100% of all government agencies.¹⁰

Example:

Public support for OSS need not be confined to research and development. The activities of the government of Brazil illustrate some options to harness public-private partnerships and the role of the public sector as major ICT consumer. A policy framework for public sector adoption of OSS was introduced in October 2003, when the federal government published guidelines for OSS software use in government. It also signed a letter of intent with IBM with the aim to boost use of OSS systems in the public sector and is in the process of finalizing recommendations that at least 80% of computers procured at the federal level in 2004 should run on OSS systems.

Meanwhile, at the municipal level, the city of Sao Paulo is in the process of rolling out its municipal network of community telecentres equipped with OSS software. Emerging evidence from this initiative suggests that, despite its reputation of being less user-friendly, OSS software is easily mastered by children and telecentre users with limited formal education.¹¹

5. Implementing e-governance initiatives places considerable demands upon human resource development, management skills and the policy environment

E-governance initiatives in the context of public sector reform are complex and rarely produce quick results. Interventions that take the long view and incorporate a long-term commitment into programme planning, design and implementation fare better than

rapid interventions that hope to trigger change rather than accompany it. This is particularly true for human resource management. Long-term strategies to develop skills, uphold motivation and retain qualified staff are important to sustain a positive learning environment and staff commitment.

In addition, e-governance poses a number of policy challenges. For example, clear guidelines for the legal validity of electronic communication and contracts, are a key prerequisite for online transactions. Similarly, the prospects of electronic voting and easy information sharing across departments raise important questions with regard to privacy, data security, and the auditability of electronic transactions. And enlisting the private sector for the delivery of electronic public services comes with challenges in terms of maintaining adequate levels of public accountability and redress.

What to do?

- Utilize tested management techniques in the implementation phase by fully articulating long-term goals and specific objectives, and putting in place clear responsibility structures for all tasks and establishing mechanisms for progress review and possible goal readjustment. This requires adopting a gradual and integrative approach for the introduction of e-governance initiatives, clear milestones and modularized execution. In general scalable interventions are preferable to sweeping ICT related reform projects since experience shows that complexity and failure rates increase exponentially with project or programme scale.
- Equally important are a realistic time frame, a full account of human resource needs, adequate provisions for funding over the entire lifetime of the initiative and a strategy for phasing out direct support and institutionalising achievements.

- Undertake complementary efforts to create an enabling policy environment. Raise awareness about required policy changes, and facilitate deliberation on the updating of legal rules in areas such as privacy, the validity of digital signatures, freedom of information or fiduciary duties of private providers of public services.

Example:

Funded by the Government of the Netherlands and UNDP, the Ministry of Agriculture & Rural Development in Vietnam drew up a comprehensive IT Master Plan. This blueprint for e-governance not only listed the envisaged infrastructure and skill upgrades, but also devised a concrete implementation plan with details on management structure, human resource requirements, the structuring of responsibilities around service level agreements, as well as on the sequencing and budgeting for the entire initiative.

Upon approval of the IT Master Plan the e-governance initiative was not immediately rolled out in its entirety, but put to test in a more limited one year pilot project, directly followed by a comprehensive assessment of results. This sequencing provided the opportunity to review both implementation strategies and the overall premises and goals of the Master Plan. The evaluation identified some shortcomings with regard to user training and relevance of online content. As a response, it recommended a number of corrective steps, for example an assessment of information needs, as well as better tailored and more gender-aware skill-building. Taken together, these recommendations informed the implementation of subsequent modules and ensured a more effective and inclusive human resource strategy to accompany them.

Example:

Argentina instituted a multi-pronged strategy to deal with the many challenges related to electronic transactions. For a start, creating

the institutional and regulatory framework for digital signatures, a key tool for electronic transactions, was explicitly recognized as a priority task in the National Program for the Information Society, the overarching ICT masterplan for the country. Building on this a 1998 decree established the validity of digital signatures for internal use within the Argentine public sector. In addition, a 2001 a law gave general legal recognition to the use of digital signatures.

Following public consultations with industry and civil society representatives the law specified the minimum requirements that need to be met for legal validity of electronic signatures and outlined the necessary institutional structures to be put in place for this purpose. Finally, a public awareness program on digital signatures was launched, training courses were offered to civil servants and the general public, and a website established to provide information resources. The campaign was met with considerable attention. By 2002 more than 400 individuals had received training, the website recorded over 100 visitors per day, the group of subscribers to weekly news updates had grown to more than 1000 individuals and, as a result of the overall initiative, more than 1500 digital certificates had been awarded.

¹ All data from UNDP. 'Human Development Report 2001', chapter 1.

² Statistics based on OECD. 'Information and Communication Technology (ICT) in Poverty Reduction Strategy Papers (PRSPs)', 2003.

³ United Nations General Assembly. Resolution A/RES/55/2 [Millennium Declaration], September 18, 2000.

⁴ For aggregate statistics see Standish Group. 'The CHAOS Chronicles', 1999.

⁵ *E-governance* should not be confused with *Internet governance*, which refers to the rules and regimes that govern the Internet itself, such as infrastructure and intellectual property policies or standard setting procedures. Sometimes *e-governance* is also distinguished from *e-government*, in order to highlight the democratic qualities of new ICTs that do not only stand to support the work of governments, but also promise to foster new forms of political mobilisation and multi-stakeholder governance.

⁶ See Kim, Y. and Lee, G. 'Strategic Use of IT: The Effectiveness of the Seoul Metropolitan Government's Open System'. in: Seoul Development Institute. Building Good Governance : Reforms in Seoul, 2003; Boyoung I. and Jinwoo J. 'Using ICTs to Strengthen Government Transparency and Relations With Citizens in Korea'. in: OECD. Citizens as Partners. Information, Consultation and Participation in Policy Making, 2001. pp. 209-219.

⁷ APC News. 'Online Websites Promote Transparent Local Government in Colombia'. May 30, 2003.

⁸ See Gadjiyev, S. 'ICT and Innovative Customs Tactics'. Presentation for ICT Roundtable. UNECE. Geneva. February 24-25, 2003.

⁹ See Economist. 'Open Source's Local Heroes'. December 4, 2003.

¹⁰ See Sabido IX, D. et al. 'Philippine Country Paper on Open Source Policy, Status, Adoption, and Future Directions'. Paper for Asia Open Source Software Symposium. Singapore, 2003.

¹¹ See Dravis, P. 'Open Source Software: Perspectives for Development'. Washington DC. World Bank/InfoDev, 2003.

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Other Resources

APDIP - International Open Source Network
<http://www.iosn.net/>

Development Gateway
<http://www.developmentgateway.org/>

DigitalGovernance.org Initiative
<http://www.digitalgovernance.org/>

Digital Opportunity Channel
<http://www.digitalopportunity.org/>

Eldis Gateway to Development Information
<http://www.eldis.org/>

Free Software and Open Source Foundation for Africa
<http://www.fossfa.org/>

UNDP - E-governance Academy Tallinn
<http://www.ega.ee/>

UNDP - Networking and Information Technology
 Observatory
<http://www.sdn.undp.org/observatory/>

UNESCO - Free Software Portal
http://www.unesco.org/webworld/portal_freesoft

The *ESSENTIALS* series summarizes and synthesizes main lessons learned and recommendations made by UNDP and other development agencies on selected subjects. It is designed to provide UNDP country offices and headquarters easy access to lessons learned from evaluations.

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